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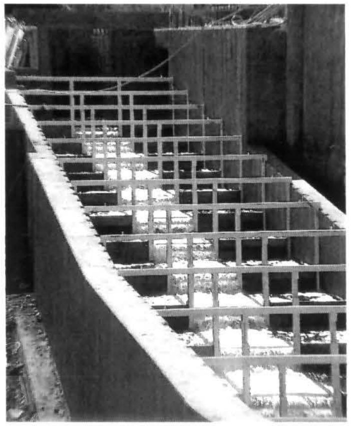
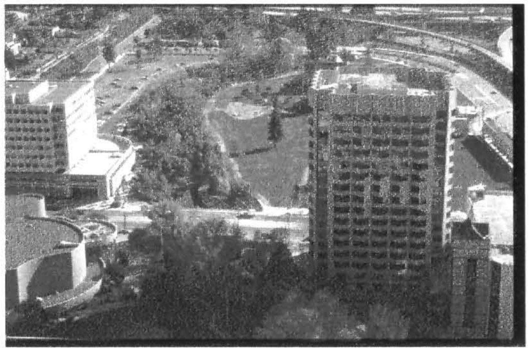
Silicon Valley's Water Supply and Water Quality Challenges





Santa Clara Valley Water District

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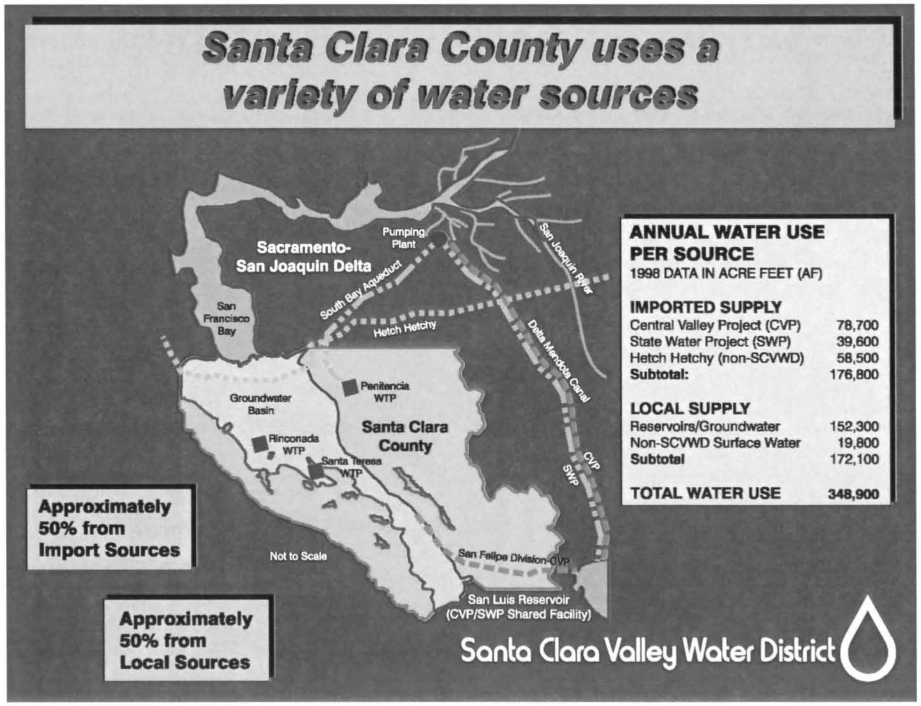
Silicon Valley's Economy is Dependent on a Reliable and High Quality Water Supply

- The Santa Clara Valley Water District (SCVWD) is the water resource management agency that supplies water to 1.7 million residents and more than 6,200 high-tech businesses that constitute Silicon Valley.
- Santa Clara County leads the nation in high-tech output and in concentration of high-tech industries.

- The 1998 gross regional product of San Jose metropolitan area was $106 billion.
- The 1998-99 assessed land value of Santa Clara County was $158 billion.
- Exports from Santa Clara County totaled $26.1 billion in 1998.

Imported Water is Critical to Silicon Valley's Water Supply

- SCVWD supplements locally-developed supplies by importing water from the Bay-Delta since 1965, as one of the measures to halt land subsidence.
- Bay-Delta supplies constitute more than half of the available water supply in average years and up to 90 percent in drier years.
- Bay-Delta supplies have been unreliable in recent years because of natural droughts and regulatory actions to provide more water for the environment.
- Recently proposed actions by the federal government to protect and enhance the Delta ecosystem threaten to further reduce SCVWD's imported supplies.



Santa Clara County uses a variety of water sources

ANNUAL WATER USE PER SOURCE
1998 DATA IN ACRE FEET (AF)

IMPORTED SUPPLY	
Central Valley Project (CVP)	78,700
State Water Project (SWP)	39,600
Hetch Hetchy (non-SCVWD)	58,500
Subtotal:	176,800
LOCAL SUPPLY	
Reservoirs/Groundwater	152,300
Non-SCVWD Surface Water	19,800
Subtotal	172,100
TOTAL WATER USE	**348,900**

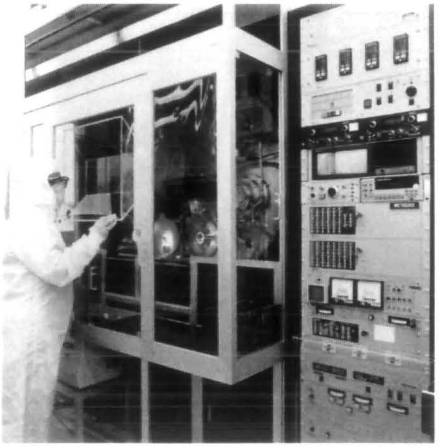
Approximately 50% from Import Sources

Approximately 50% from Local Sources

Santa Clara Valley Water District

Silicon Valley Needs a Clean, Safe, High Quality Water Supply

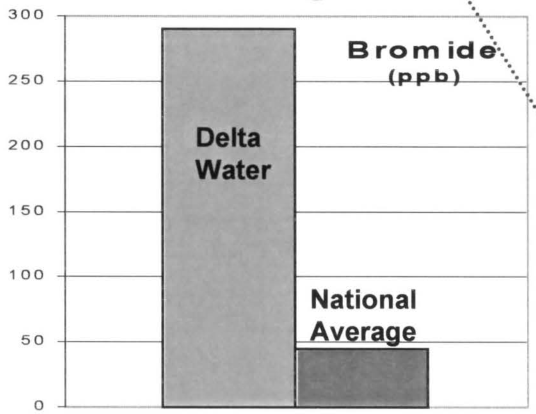
- The 1.7 million residents of Santa Clara County demand a water supply that meets or exceeds all applicable health standards.



- The valley's high-tech and pharmaceutical industries demand a consistent, high-quality supply to support their manufacturing, research and development needs.
- Companies such as Intel and LSI Logic invest in additional treatment processes to remove any traces of metals, organics and salts.
- Variability in quality can cause plant shut downs for recalibration with related economic impacts.

Public Health Protection Requires Both High Quality Source Water and Advanced Treatment

- Bay-Delta waters are poor in quality because of the high bromide and organics content.

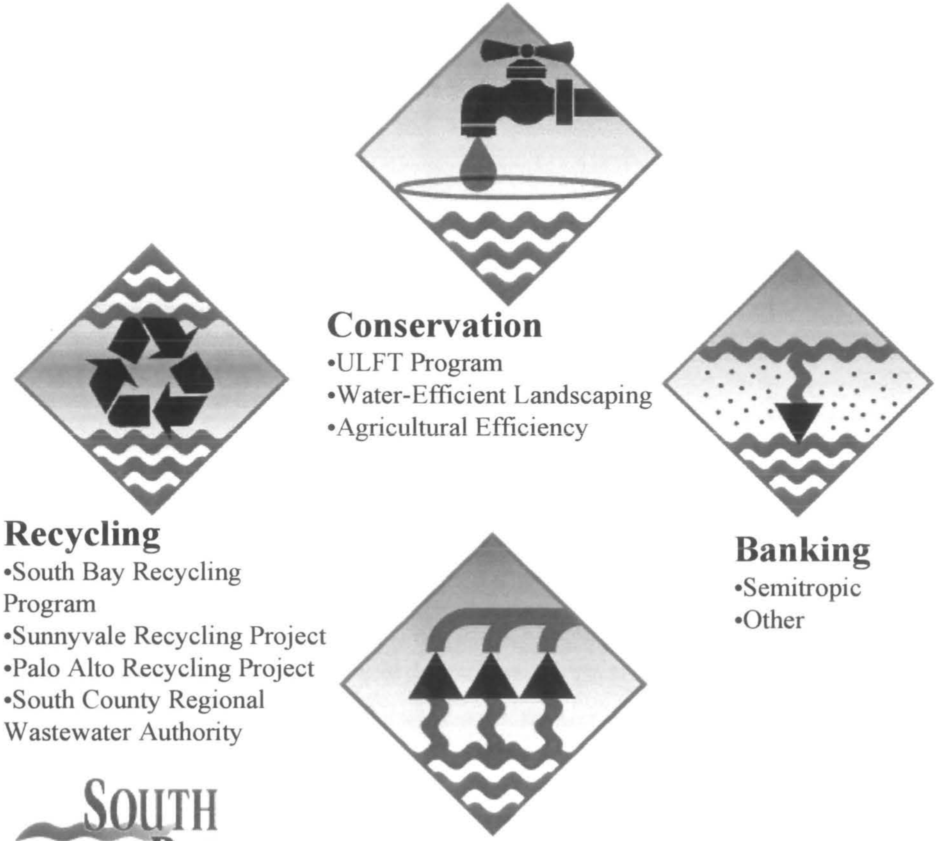


- Some regulatory actions to enhance the Delta ecosystem often further degrade the quality of Bay-Delta supplies.

- SCVWD treats its supplies to disinfect and remove disease-causing pathogens.
- However, chemicals used for disinfection react with bromide and organics to form disinfection-by-products which may be carcinogenic and could pose reproductive health concerns.
- Without improved source water quality, disinfection-by-products will remain a serious and costly problem for utilities to meet increasingly stringent standards.

Santa Clara County has Diligently Planned for and Invested in Programs to meet Future Droughts and Increasing Demands

- SCVWD has made significant investments in conservation, recycling, water banking and transfers to buffer the impacts of an extended drought and to serve expected growth in demand.
- The success of these strategies depend on a reliable base supply of imported water from the Bay-Delta system.



Conservation
- ULFT Program
- Water-Efficient Landscaping
- Agricultural Efficiency

Recycling
- South Bay Recycling Program
- Sunnyvale Recycling Project
- Palo Alto Recycling Project
- South County Regional Wastewater Authority

Banking
- Semitropic
- Other

Transfers
- Drought Water Bank
- CVP Joint Contract Assignment
- Other

SOUTH BAY
WATER RECYCLING

Santa Clara County Also Invests in Advanced Treatment, Watershed Protection, and Ecosystem Restoration

SANTA CLARA BASIN

WMI

WATERSHED
MANAGEMENT INITIATIVE

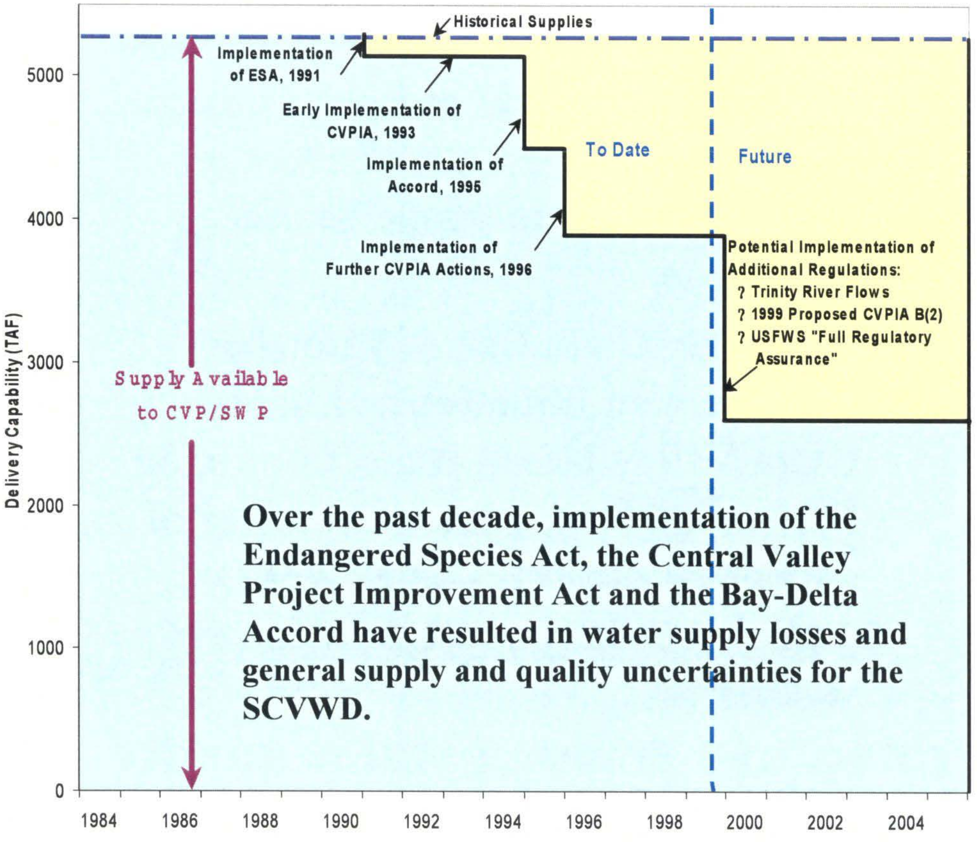
- Santa Clara Valley Water District (SCVWD) has been contributing $1-2M/ year to Bay-Delta restoration since 1993 through CVPIA.
- SCVWD contributed $1M to CALFED's Category III Program to jump-start its ecosystem restoration program.

- SCVWD is investing $150 million to upgrade its treatment process to ozone disinfection, currently the most advanced treatment process for large water treatment plants, to address new challenges in public health protection.
- The Santa Clara Basin Watershed Management Initiative and Santa Clara Valley Urban Runoff Pollution Prevention Program are examples of cooperative efforts that SCVWD participates in to protect the local watersheds.

The most cost effective way to protect and enhance water quality would be at the source: the Bay-Delta.

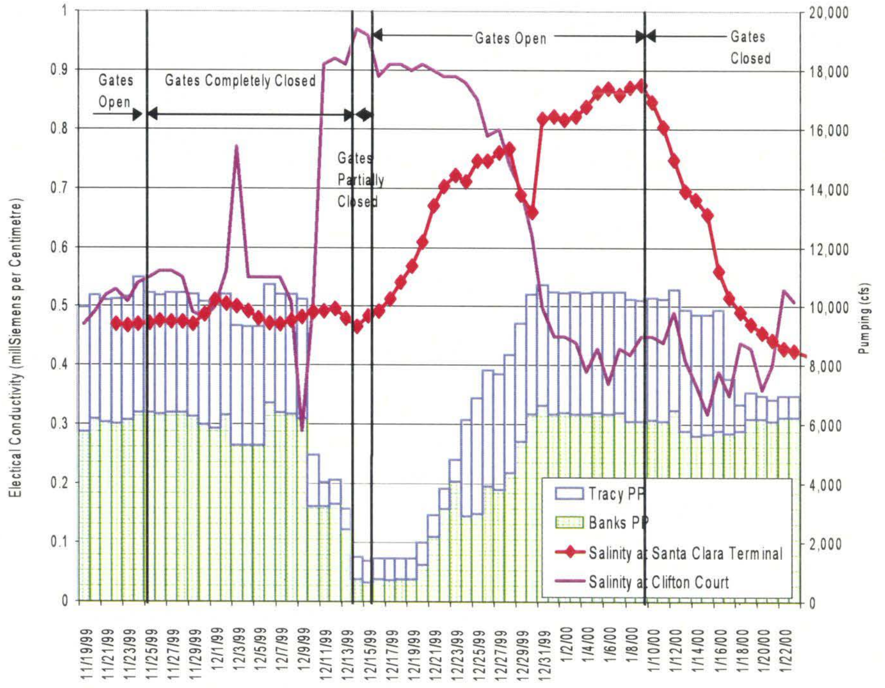
Federal Regulatory Actions Continue to Create Water Supply and Quality Impacts

Trend in Combined CVP/SWP Drought Period Delivery Capability South of the Delta



Over the past decade, implementation of the Endangered Species Act, the Central Valley Project Improvement Act and the Bay-Delta Accord have resulted in water supply losses and general supply and quality uncertainties for the SCVWD.

Delta Cross Channel Gates Closure in December 1999 Focused on Spring Run Protection Resulted in Violation of Water Quality Standards and Lost Water Supply



Unbalanced operational decisions within the Delta resulted in degraded water quality and lost supplies for SCVWD.

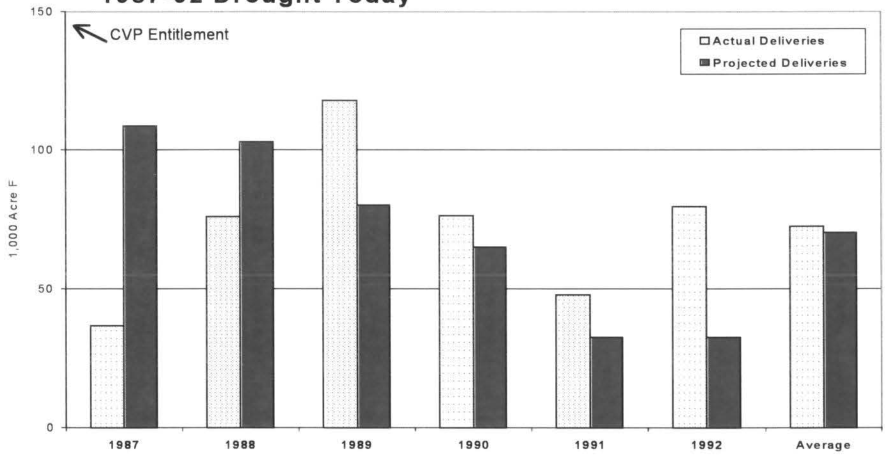
Bay-Delta Supplies are Being Re-allocated

- Bay-Delta supplies remain uncertain and often reduced, despite the efforts and investments made by SCVWD and other water users to restore the Bay-Delta ecosystem and to remedy shortages.
- Proposed actions by the federal government would further increase dry year shortages, and create shortages even in average to wet years.

Implementation of Section 3406(b)(2) of the CVPIA in Year 2000

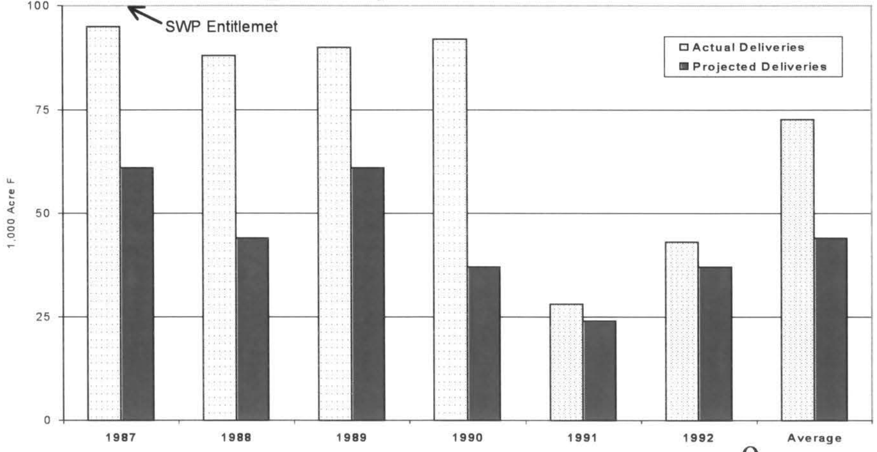
Probability of Exceedence Forecasts	Scenario	North of Delta Alloc.	South of Delta Allocation				Federal San Luis Low Point (TAF)	Total CVP Exports (TAF)
	Forecasts		Ag	M & I	Refuge	Water Right		
90% (Dry)	Pre-CVPIA	100%	75%	100%	100%	100%	112	3414
	WQCP	100%	55%	80%	80%	100%	42	2912
	(b)(2)	100%	50%	75%	75%	100%	35	2798
50% (Average)	Pre-CVPIA	100%	75%	100%	100%	100%	125	3456
	WQCP	100%	75%	100%	100%	100%	33	3300
	(b)(2)	100%	45%	75%	100%	100%	7	2927

CVP Deliveries to SCVWD in a Reoccurance of the 1987-92 Drought Today



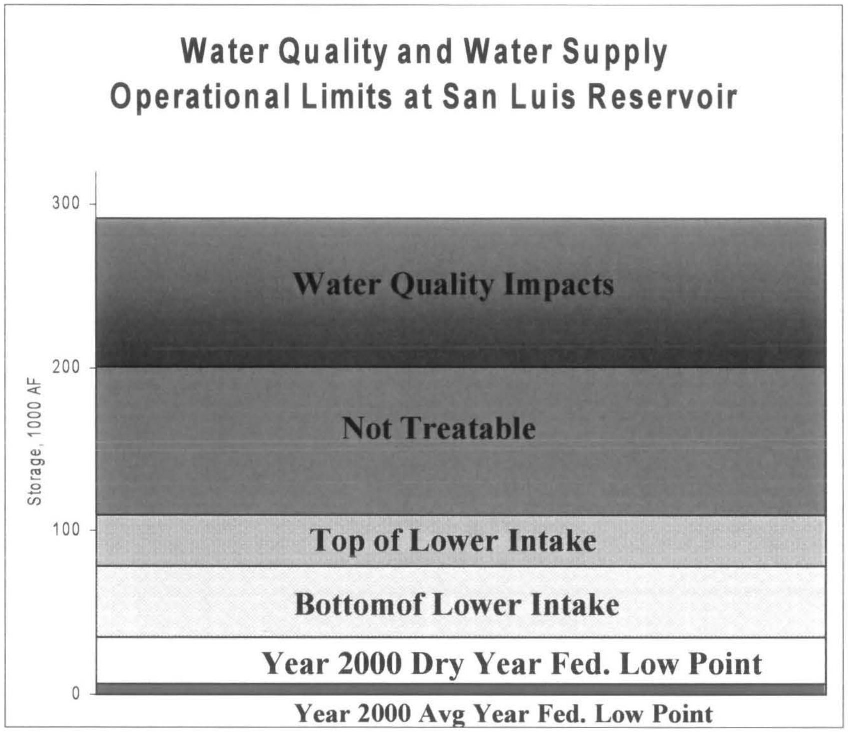
Actual CVP deliveries in 1987 and 1988 were low because of the initial delivery build-up period.

SWP Deliveries to SCVWD in a Reoccurance of the 1987-92 Drought today



Silicon Valley Threatened with Interrupted CVP Water Service

- In the summers of 1997 and 1999, San Luis Reservoir (SCVWD's source of federal CVP water) was depleted because of pumping restrictions to protect endangered species.
- As a result, Santa Clara County's and Silicon Valley's water supplies were threatened: first with water quality problems and then with supply interruption. A potential crisis was only averted because of unprecedented cooperation by other SWP contractors. This flexibility cannot be relied upon in the future.
- The federal government's planned operation for year 2000 would again deplete storage in San Luis Reservoir and Santa Clara County would again face a CVP supply outage.



Water Quality and Water Supply Operational Limits at San Luis Reservoir

Today, there is no assurance of uninterrupted federal water supplies for the 1.7 million residents of Santa Clara County and the regional economy.

Long-term Impacts to Water Marketing and Groundwater Banking Programs from Federal Regulatory Actions

- SCVWD invested in groundwater storage programs in the San Joaquin Valley and plans to use water transfers to offset shortages and to provide for future growth. However, the value of SCVWD's investments are threatened by federal regulatory actions to protect the Delta ecosystem and fisheries.

Groundwater Banking:

- Increased CVP and SWP pumping restrictions in average and wet years mean that SCVWD has substantially less water to store for future drought years.
- SCVWD may even have to use banked supplies in average or wet years, rather than add to storage in those years as originally planned and relied upon.

Water Markets:

- Less water is available south of the Delta for transfer to or exchange with urban water districts.
- Access to water north of the Delta is limited by pumping restrictions in the Delta.

Conveyance & Operations:

- Ability to move contracted for and/or banked supplies to Santa Clara County may be impacted by operational restrictions in the Delta and by low storage levels in San Luis Reservoir.

Diminishing Return for Local Investments

- **Investments by SCVWD and South Bay Cities:**
  - $30 million from 1989 to 1999 in groundwater storage and drought bank purchases to remedy existing shortages in Bay-Delta supplies.
  - $140 million in Phase I of the South Bay Recycling Program
  - $31 million since 1991 in SCVWD's conservation programs.
  - $150 million in treatment process upgrades to comply with evolving Safe Drinking Water Act requirements.
  - $8 million to-date for Bay-Delta ecosystem restoration.
  - Additional $430-600 million investments in banking, transfers and exchanges potentially required in the next 30 years to remedy future, more frequent and severe shortages.
- **"Rewards" to Santa Clara Valley Water District:**
  - Further reductions and increased uncertainties in Bay-Delta supplies.
    - The Programmatic EIS for CVPIA shows 50% reductions in M&I supplies in dry years.
  - Interruptions in CVP water service during peak summer months due to low San Luis storage levels.
  - Degradation in source water quality due to Delta operations and low San Luis storage.
  - Compromised implementation of local investments and tools.
    - Source of transfer water to remedy shortages severely reduced or eliminated.
    - Operational restrictions at the Delta reduce flexibility to bank or transfer water.
    - Reduced source of blending water for future indirect potable recycling.
    - Demand hardening from increased conservation reduces flexibility to deal with shortages.

Why We Need Immediate Corrective Actions

- **There is a limit to Silicon Valley's ability-to-pay.**
  - The cost to provide a clean, reliable water supply is part of the cumulative challenge and burden, along with transportation, housing, and urban growth.
- **Bay-Delta investments compete with local needs.**
  - Balanced implementation of CVPIA is needed to enable Santa Clara County to continue investing in restoration of the Bay-Delta ecosystem and to maintain the environment, economy and quality of life in Santa Clara County.
- **Utility of tools is being diminished.**
  - Degradation of the quality and reliability of Delta supplies leads to reduction in feasibility and benefit of local investments in conservation, recycling, transfers, and groundwater banking.
- **Silicon Valley needs to stay competitive.**
  - Silicon Valley businesses make decisions based on water supply and quality certainty; uncertainty results in decisions to locate elsewhere or not to expand operations.

Santa Clara Valley Water District's Proposal for Supply Certainty & Quality

- **Provide a reliable supply of healthful, clean drinking water** for Santa Clara County through a CALFED solution that effectively addresses current needs *and* provides a long-term path to progress.
- **Provide regulatory certainty and institutional stability** through Federal support for CALFED goals that is comprehensive and encompasses related foundational issues of CVPIA implementation and CVP contract administration.
- **Protect Delta drinking water supply quality** from degradation.
- **Expand local initiatives** such as recycling, conservation, groundwater banking and water transfers by providing institutional and financial support.
- **Expand system flexibility** for long-term water supply reliability and quality through additional statewide or regional infrastructure.

Balance Between Environmental and Societal Needs Must be Restored and Maintained